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| HLD DOCUMENT |
| Digital Clock |
| Team manager: Seif eldin ahmed |
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C:\Users\Anwar\Desktop\Untitled Diagram (2).png**1.System Architecture**

**1.1Micro controller abstraction layer (MCAL):**

The MCAL contains:

* **DIO** module to read micro controller pins and write to it as also.
* **TIMER** module with interrupt every one second

**1.2Basic software (BSW):**

The BSW contains:

* **SWITCH** to know switch state either pressed or released
* **LCD** to display time

**1.3 Application:**

The application layer contains the main code using all the APIs provided by BSW layer.

**C:\Users\Anwar\Downloads\Untitled Diagram (5).png2. BSW, MCAL communication**

* **SWITCH** module from **BSW,** the **TACTILEu8GETSTATE()** in it uses **DIOREADPINVAL()**from**DIO** module from **MCAL** to check if it is pressed or not and change switch state from RELEASED to DEBOUNCING to PRESSED.

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* **LCD** module from **BSW,** All APIs in it uses **DIOWRITEPINVAL()**from**DIO** module from **MCAL** to write command or data to LCD.

C:\Users\Anwar\Downloads\Untitled Diagram (5).png**3. APPLICATION, BSW communication**

**The applications** uses from **BSW**

* **TACTILEu8GETSTATE()** from **SWITCH** moule to check the three switches state to change its mode and function.
* **LCD\_VOIDWRITECHAR** from **LCD** module to write data to LCD
* **LCD\_VOIDWRITECOMMAND** from **LCD** module to write commands to LCD

**N.B:** there is a call back function to assign functionality of the timer ISR.